

A checklist of Mantodea for Myanmar with the first record of *Schizocephala bicornis* (Mantodea, Eremiaphilidae) for the country

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Abstract

This paper presents the first comprehensive checklist of Mantodea species in Myanmar, reporting a total of 54 species belonging to 11 families and 32 genera, one of which (i.e., *Schizocephala bicornis*) constitutes a new record for the country. Four species, *Creobroter urbanus*, *Gonypeta brunneri*, *Theopompa servillei*, and *Rhombodera laticollis*, are considered doubtful within Myanmar's fauna and require further investigation to confirm their presence. Additionally, *Aethalochroa ashmoliana*, *Gonypeta punctata*, and *Toxoderopsis taurus* are regarded as erroneous records.

Key words: Distribution, mantids, Schizocephalini, taxonomy



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Introduction

The study of Mantodea in Myanmar has been largely neglected, with most records being scattered across various publications that primarily focus on the Mantodea of other regions (e.g., Borneo, India) or the catalogue of Mantodea of the world (Ehrmann 2002; Schwarz et al. 2018; Sathe and Vaishali 2014; Mukherjee et al. 2014; Ehrmann and Borer 2015; Ghate et al. 2021; Yadav and Painkra 2021; Wu and Liu 2021; Kamila and Sureshan 2022). These studies often mention species that also occur in Myanmar. However, until now, there has been no comprehensive checklist dedicated to the Mantodea of Myanmar. This study closes this gap and presents the first such checklist of Mantodea from Myanmar, by using all the relevant literature in order to provide a comprehensive view of the species present in this region. The creation of a checklist is crucial for several reasons. First, a checklist facilitates taxonomic research by providing a reliable reference that can be used to compare species distributions and identify gaps in current knowledge (Margules and Pressey 2000). Second, it serves as a basic resource for biodiversity assessment and conservation planning, helping to identify species that may be endemic or at risk (Costello et al. 2013). By compiling this checklist, we aim to facilitate and encourage further research on Myanmar's Mantodea diversity.

Materials and methods

To compile the checklist, we utilized a range of literature including Wood-Mason (1889), Ehrmann (2002), Roy (2009), Sureshan and Sambath (2009), Schwarz et al. (2018), Mukherjee et al. (2014), Sathe and Vaishali (2014), Ehrmann and Borer (2015), Yadav and Painkra (2021), Wu and Liu (2021), Kamila and Sureshan 2022, as well as the Mantodea Species File website (Otte et al. 2023). These sources are well established and widely regarded as authoritative references in Mantodea research, frequently cited by experts in the field. In addition to the primary sources, data from the iNaturalist and GBIF platforms were also utilized. The term “Mantodea” was searched using a regional filter set to “Myanmar” to extract relevant records. Since citizen science platforms like GBIF may contain misidentifications, each record, along with its associated photographs when available, was individually reviewed.

The assessments followed specific criteria: If key morphological features could be clearly identified from the photographs, the species record was included in this study. However, if identification required the examination of male genitalia or other characteristics not visible in the photographs, the species was either excluded from the checklist or classified as potentially present. Such records were marked for further verification through future surveys to confirm their presence. This systematic approach improved the reliability of the species records while acknowledging the limitations of photographic evidence in certain cases. The taxonomy employed in this study adheres to the framework proposed by Schwarz and Roy (2019), with classification levels – family, subfamily, tribe, subtribe, genus, and species – structured according to the system detailed by Otte et al. (2023).

For the assignment of faunal elements, we first distinguished species apparently endemic to Myanmar from all the others. Second, we selected the species with a Bengal distribution, i.e., adjoining the Gulf of Bengal, being distributed along the coast of east India, as well as in Bangladesh and Myanmar. For the remaining species, the Oriental realm sensu Wallace (1876) was dissected into three parts: India, Indochina, and Sundaland. While India and Indochina are more or less separated by the Ganges delta, Indochina and Sundaland are separated by the Isthmus of Kra in Thailand (Schmitt 2020). If a species is marginally penetrating one adjoining sub-region, it is not considered part of this subregion; thus, Indochinese species also entering north-eastern India are not considered Indian elements, while Indian elements marginally entering Myanmar are not considered as Indochinese elements. As adjoining regions to the Oriental realm, we consider the two transition regions towards East Palearctic and Australis (i.e., Wallacea) and the two regions East Palearctic and New Guinea. Species occurring beyond these regions are classified as such.

Among the unidentified Mantodea specimens housed at the Senckenberg German Entomological Institute (**SDEI**), one specimen was identified by the first author as *Schizocephala bicornis* (Linné, 1758). This identification was achieved through a detailed examination of morphological characteristics, comparing the specimen with other *S. bicornis* specimens from Sri Lanka and India available in the collection. The method for preparing male genitalia followed Brannoch et al. (2017). The final segments of the male abdomen were dissected under a microscope, with the genitalia separated from the terminalia. The genitalia were

then macerated in a 10% KOH solution for 24 h. After maceration, the sample was rinsed in distilled water for 24 h, followed by treatment in 70% ethanol, and finally, placed in glycerin to eliminate any remaining ethanol. The genitalia were photographed and stored in a vial with glycerin drops for further analysis. Photographs were taken using a set-up that included the Stone Master Stack Unit, an Olympus OM-D E-M1 Mark II camera, and Zeiss Luminar lenses (40 mm). The software used included Olympus Capture, Stone Master v. 3.8, Helicon Focus 7 for photo stacking, and ImageJ 1.53t for adding scale bars.

To create the distribution map, occurrence records of *S. bicornis* were gathered from previous studies (Sureshan and Sambath 2009; Sathe and Vaishali 2014; Yadav and Painkra 2021), as well as from the GBIF database (<https://doi.org/10.15468/dl.vh8rf8>), the iNaturalist portal (<https://www.inaturalist.org/taxa/52101-Schizocephala-bicornis>), and various museum collections (State Museum of Natural History, Karlsruhe (SMNK); Cleveland Museum of Natural History (CMNH); Lund University Biological Museum—Insect Collections Inventory, Entomological Collections (LUZM); Swedish Museum of Natural History (NHRM); and Royal Ontario Museum—Entomology Collection (ROMT)). All records available in GBIF were initially sourced either from iNaturalist or various museum collections. Upon reviewing iNaturalist records, we examined the associated photographs and excluded a few that were incorrectly identified. Subsequently, we contacted the museums to request photographs and the coordinates of the specimens, allowing us to verify that museum records corresponded to *S. bicornis*. A total of 180 records were obtained and mapped using QGIS v. 3.22.

Abbreviations of the zoological institutes and museums mentioned in this study:

ANSP	Academy of Natural Sciences, Philadelphia, USA
CNMS	National Museum, Colombo, Sri Lanka
DBUC	Dipartimento di Biologia Animale, Università di Catania, Catania, Sicily, Italy
FRID	Forest Research Institute, Dehra-Dun, India
HNHM	Hungarian Natural History Museum, Budapest, Hungary
IEAS	Academia Sinica, Shanghai, China
IFRI	Indian Forest Research Institute, Dehra Dun, Uttar Pradesh, India
LNHSM	Lingnan Natural History Survey and Museum, Lingnan University, China
LSUK	Linnean Society, London, United Kingdom
MEUU	Museum of Evolution of Uppsala University, Uppsala, Sweden
MHNG	Muséum d’histoire naturelle, Geneva, Switzerland
MNHN	Muséum national d’Histoire naturelle, Paris, France
MRSN	Natural History Museum, Turin, Italy
MSNG	Museo civico di Storia naturale G. Doria, Genoa, Italy
NHML	Natural History Museum of Los Angeles, USA
NHMUK	Natural History Museum, London, Great Britain
NHMW	Natural History Museum, Vienna, Austria
NHRS	Naturhistoriska Riksmuseet, Stockholm, Sweden
OXUM	University Museum, Oxford, Great Britain
RMNH	Nationaal Natuurhistorisch Museum, Leiden, Netherlands
SDEI	Senckenberg German Entomological Institute, Müncheberg, Germany

SEM	Shanghai Entomological Museum, Chinese Academy of Sciences, Shanghai, China
SMNK	State Museum of Natural History, Karlsruhe, Germany
UZI	Universitets Zoologiska Institut, Uppsala, Sweden
ZMAS	Saint-Petersburg, Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia
ZMB	Museum für Naturkunde der Humboldt-Universität zu Berlin, Berlin, Germany
ZMUH	Zoological Museum and University, Copenhagen, Denmark
ZSIC	Zoological Survey of India, Calcutta, India
ZSM	Zoological State Collection, Munich, Germany

Results

Checklist of the Mantodea of Myanmar

The checklist presented in this study includes a total of 54 species across 11 families and 32 genera. A review of observational records from iNaturalist and GBIF yielded approximately 102 records for 24 species from iNaturalist and 293 records from 47 species from GBIF. The GBIF data consisted of records from multiple sources, including:

- SMNK Mantid Collection: 236 records
- iNaturalist Research-grade Observations: 19 records
- NMNH Material Samples (USNM): 9 records
- NHMUK (London) Collection Specimens: 8 records
- NMNH Extant Specimen Records (USNM): 7 records
- International Barcode of Life project (iBOL): 4 records
- Cleveland Museum of Natural History: 4 records
- Paleobiology Database: 3 records
- INSDC Sequences: 3 records

In total, these platforms provided records for 47 species, including three extinct species of Mantodea (*Burmantis asiatica* Grimaldi, 2003, *Burmantis burmitica* Grimaldi, 2003, *Burmantis zherikhini* Delclos, Penalver, Arillo, Engel, Nel, Azar & Ross, 2016) discovered in Myanmar from amber fossils. Most of the recorded specimens are housed in museums and are included in the literature used for this study. However, some species were identified from Myanmar in museum collections, mostly at SMNK, Germany. Based on the known distribution of these species, it is plausible to classify the following species as expected taxa for Myanmar:

- Anaxarcha graminea* Stål, 1877
- Hierodula tenuidentata* Saussure, 1869
- Hierodula pistillinota* Wang, Zhou & Zhang, 2020
- Hierodula confusa* Vermeersch & Unnahachote, 2020
- Tropidomantis gressitti* Tinkham, 1937
- Tropidomantis tenera* (Stål, 1858)
- Creobroter apicalis* Saussure, 1869

Leptomantella tonkinae Hebard, 1920

Acromantis gestri Giglio-Tos, 1915

Additionally, the following species are regarded as doubtful and require verification:

Gonypeta brunneri Giglio-Tos, 1915 (Ehrmann 2002)

Theopompa servillei (De Haan, 1842) (Mukherjee et al. 2014; Kamila and Sureshan 2022)

Rhombodera laticollis Burmeister, 1838 (Ehrmann 2002)

Creobroter urbanus (Fabricius, 1775) (Ehrmann and Borer 2015; Kamila and Sureshan 2022).

Furthermore, the species *Aethalochroa ashmoliana* (https://www.inaturalist.org/taxa/750709-Aethalochroa-ashmoliana/browse_photos?place_id=6992), *Gonypeta punctata* (De Haan, 1842) reported in regional checklists (Mukherjee et al. 2014; Kamila and Sureshan 2022), and *Toxoderopsis taurus* (https://www.inaturalist.org/taxa/750765-Toxoderopsis-taurus/browse_photos?place_id=6992) are considered erroneous in this study. The presence of *Gonypeta punctata* (Evgeny Shcherbakov, pers. comm. Dec. 2024), *Aethalochroa ashmoliana*, and *Toxoderopsis taurus* in Myanmar is uncertain due to the lack of confirmed specimens, potential misidentifications, and gaps in verified distribution data. Further fieldwork and examination of museum specimens are recommended to confirm the occurrence of these species in Myanmar. This checklist provides a comprehensive compilation based on current knowledge and a thorough review of the literature, with all relevant records carefully examined.

Order Mantodea Latreille, 1802

Family Metallyticidae Giglio-Tos, 1917

Genus *Metallyticus* Westwood, 1835

1. *Metallyticus violaceus* (Burmeister, 1838)

Metalleutica violacea Burmeister, 1838: 527.

= *Metallyticus splendidus* var. Westwood, 1835: 442.

= *Metallyticus splendidus* var. *purpureus* Westwood, 1837: 359. Westwood 1889: 1.

= *Metalleutica vitripennis* Burmeister, 1838: 527.

= *Mantis chalybea* Serville, 1839: 202–203.

= *Metalleutica violacea* Burmeister, 1838: Charpentier 1841: 287–288. Saussure 1871: 267–268. Borre 1883: 62. Wood-Mason 1889: 1.

= *Mantis (Metalleutica) splendida* Westwood, 1835: De Haan 1842: 83.

Type material. Paratypes ♂ ♀ ZMB.

Type locality. Java.

Distribution. India (?), Myanmar (Giglio-Tos 1927; Wieland 2008), Malay Peninsula, Sumatra (Singkep Island), Borneo, Java, Davao (S Mindanao, Philippines) (Ehrmann 2002).

Faunal element. Oriental.

Remark. Historical records of *M. violaceus* from Myanmar and neighboring regions contain certain ambiguities. Giglio-Tos (1927) documented a single specimen from Tavoy, Myanmar, now known as Dawei, a city in southeastern Myanmar. This record is considered reliable, as it aligns well with the known distribution of the species. However, Wieland (2008) reported the existence of two specimens collected in 1836, currently housed in the Musée National d'Histoire Naturelle, Paris. These specimens are labelled as originating from “Mari, Indes orientales,” a term that Wieland found ambiguous. His research indicated that “Mari” could refer to several locations, including sites in Pakistan, Myanmar, and Papua New Guinea. Ultimately, Wieland speculated that the location might be in northern Myanmar or Pakistan. Based on the known distribution of this species, we believe that its occurrence in northern Myanmar is unlikely. Instead, it is more plausible that the term “Mari” refers to a location in Indonesia, where species of this genus are commonly found. Further research and clarification of historical records are necessary to accurately determine the origin of these specimens.

Family Amorphoscelidae Stål, 1877

Subfamily Amorphoscelinae Stål, 1877

Genus *Amorphoscelis* Stål, 1871

2. *Amorphoscelis* sp.

Remark. In July 2024, a nymph was spotted and recorded on iNaturalist (<https://www.inaturalist.org/observations/233030975>) from Shan, Myanmar (21.929°N, 99.840°E). This specimen may belong to *Amorphoscelis singaporana* Giglio-Tos, 1915; however, accurate identification of *Amorphoscelis* species currently relies on examining male genitalia. Consequently, additional research is needed to confirm and verify the presence of this species in Myanmar. Additionally, a specimen of *Amorphoscelis* is housed in the Cleveland Museum of Natural History. It was collected by D. Brzoska from Thaung Dut, Sagaing, Myanmar, in 2013 and identified as *Amorphoscelis borneana* Giglio-Tos, 1914. However, due to the lack of access to these specimens and the need for male genitalia examination for definitive identification, we recommend future surveys to validate the occurrence of one or both species in Myanmar.

Family Nanomantidae Brunner de Wattenwyl, 1893

Subfamily Tropidomantinae Giglio-Tos, 1915

Tribe Tropidomantini Giglio-Tos, 1915

Genus *Eomantis* Giglio-Tos, 1915

3. *Eomantis guttatipennis* (Stål, 1877)

Tropidomantis guttatipennis Stål, 1877: 51.

= *Eomantis* [*Tropidomantis*] *guttatipennis* Stål, 1877: Giglio-Tos 1915: 47.

Type material. Holotype ♂ NHRS, paratype: ♀ NHMW.

Type locality. Nepal: Himalaya.

Distribution. India, Nepal, Tibet (China), Myanmar (Mukherjee et al. 2014; Schwarz et al. 2018), N Vietnam (Ehrmann and Borer 2015).

Faunal element. North Oriental.

Family Gonypetidae Westwood, 1889

Subfamily Iridopteryginae Giglio-Tos, 1915

Tribe Amantini Schwarz & Roy, 2019

Genus *Amantis* Giglio-Tos, 1915

4. *Amantis aliena* Beier, 1930

Amantis aliena Beier, 1930: 439.

Type material. Holotype ♀ NHMUK.

Type locality. Myanmar-SW: Tenasserim.

Distribution. Myanmar.

Faunal element. Endemic in Myanmar.

5. *Amantis biroi* Giglio-Tos, 1915

Amantis biroi Giglio-Tos, 1915: 153.

Type material. Holotype ♂ HNHM, paratype ♀ MHNG.

Type locality. India E: Martheran 800 m, Carin Cheba.

Distribution. India, Myanmar (Mukherjee et al. 2014; Schwarz and Konopik 2014).

Faunal element. Indian.

6. *Amantis bolivarii* Giglio-Tos, 1915

Amantis bolivarii Giglio-Tos, 1915: 153.

Type material. Syntypes ♂ MHNG, ♀ MSNG.

Type localities. Myanmar-SW: Tenasserim, Nepal: Himalaya-Kurseong.

Distribution. India, Nepal, Myanmar, Vietnam (Ehrmann and Borer 2015).

Faunal element. North Oriental.

Remark. Ehrmann (2002) listed the following type material for the species: a male holotype in MHNG, a female paratype in MSNG, a male paratype in HNHM, and a possible (para)type male in MRSN. However, according to the original description, there are only two syntypes, a male from Kurseong and a female from Tenasserim, with no holotype originally designated. Therefore, there are still only two syntypes in MHNG and MSNG, with no holotypes or paratypes nor lectotypes and paralectotypes being designated at this moment.

7. *Amantis fuliginosa* (Werner, 1931)

Cimantis fuliginosa Werner, 1931: 1330.

Type material. Holotype ♂ NHMUK.

Type locality. India: Madras-Anamalai Hills, 700 m a.s.l.

Distribution. India, Nepal, Myanmar (Mukherjee et al. 2014).

Faunal element. Indian.

8. *Amantis irina* (Saussure, 1870)

Gonypeta irina Saussure, 1870: 244. Saussure 1871: 56–57.

= *Iridopteryx*? [*Gonypeta*] *irina* (Saussure, 1870): Kirby 1904: 223.

Type material. Holotype ♂ MHNG.

Type locality. Maluku Islands.

Distribution. Myanmar, Malay Peninsula, Sumatra, Maluku Islands (Ehrmann 2002).

Faunal element. Indochinese and Sundaian.

9. *Amantis reticulata* (De Haan, 1842)

Mantis (*Oxypilus*) *reticulata* De Haan, 1842: 87. Stål 1860: 313–314. Kirby 1904: 223. Rehn 1912: 122.

= *Iridopteryx infumata* Bolivar, 1897: 305–306. Rehn 1903: 702.

= *Amantis gestri* Giglio-Tos, 1915: Herbard 1920: 30–31. Giglio-Tos 1927: 171. Beier 1935: 28: Beier 1966: 361 (Syn.?).

Type material. Holotype ♂ RMNH.

Type locality. Java: Karawang.

Distribution. Myanmar, Malay Peninsula, Sumatra, Borneo, Palawan, Java (Ehrmann 2002).

Faunal element. Indochinese and Sundaian.

Subfamily Gonypetinae Westwood, 1889

Tribe Gonypetini Westwood, 1889

Subtribe Gonypetina Westwood, 1889

Genus *Memantis* Giglio-Tos, 1915

10. *Memantis fuliginosa* (Thunberg, 1815)

Mantis fuliginosa Thunberg, 1815: 291–292.

= *Gonypeta femorata* Saussure, 1870: 230. Saussure 1871: 58–59.

= *Humbertiella consobrina* Saussure, 1871: 273–274.

= *Gonypeta* [*Mantis*] *fuliginosa* (Thunberg, 1815): Wood-Mason 1891. Kirby 1904: 224.

= *Elaea* [*Humbertiella*] *consobrina* (Saussure, 1871): Kirby 1904: 214.

Type material. Holotype ♀ MEUU.

Type locality. Sri Lanka.

Distribution. India, Sri Lanka, Nepal, Myanmar (Ehrmann and Borer 2015).

Faunal element. Indian.

Remark. Recent research has revealed inaccuracies in the previously documented information about this species. Kris Anderson conducted a thorough investigation into Thunberg's publications and uncovered key details. Contrary to earlier reports, the holotype is not housed at ZMAS, but at Uppsala University. Additionally, while the type locality was originally recorded as "India E," Anderson's research has clarified that the correct location is actually Sri Lanka. This updated information, verified through personal communication with Kris Anderson (Nov. 2024), corrects the inaccuracies presented in the earlier literature.

Genus *Gimantis* Giglio-Tos, 1915

11. *Gimantis authaemon* (Wood-Mason, 1882)

Gonypeta authaemon Wood-Mason, 1882: 21–27.

= *Iridopteryx marmorata* Brunner Von Wattenwyl, 1893: 65–66.

Type material. Holotype ♀ ZSIC.

Type locality. Myanmar-SW: Tenasserim, on the Mergui River, Minthantoung.

Distribution. India, Myanmar, Thailand, Malay Peninsula (Ehrmann 2002).

Faunal element. Oriental.

Subtribe *Humbertiellina* Brunner de Wattenwyl, 1893

Genus *Humbertiella* Saussure, 1869

12. *Humbertiella ceylonica* Saussure, 1869

Humbertiella ceylonica Saussure, 1869: 62.

= *Theopompa septentrionum* Wood-Mason, 1891: 64–66.

= *Humbertiella* [*Theopompa*] *septentrionum* (Wood-Mason, 1891): Kirby 1904: 214.

Type material. Holotype ♂ MHNG.

Type locality. Sri Lanka.

Distribution. Sri Lanka, NE India, Nepal, Myanmar (Schwarz et al. 2018).

Faunal element. Bengal.

13. *Humbertiella indica* Saussure, 1869

Humbertiella indica Saussure, 1869: 62.

= *Humbertiella africana* Rehn, 1912: 106–108. Giglio-Tos 1927: 66.

Type material. Holotype ♀ MHNG.

Type locality. India.

Distribution. Pakistan, India, Sri Lanka, Nepal, S Myanmar (Ehrmann and Bor-er 2015).

Faunal element. Indian.

Family Rivetiniidae Ehrmann & Roy, 2002
Subfamily Deiphobinae Schwarz & Roy, 2019
Tribe Deiphobini Schwarz & Roy, 2019
Genus *Deiphobe* Stal, 1877

14. *Deiphobe mesomelas* (Manuel, 1797)

Mantis mesomelas Manuel, 1797: 635–636.

= *Mantis mesomelas* Olivier, 1792, attributio erroris.

= *Mantis conspurcata* Lichtenstein, 1802, partim.

= *Deiphobe mesomelas*: Giglio-Tos 1927: 487. Patel and Singh 2016: 41.

= *Deiphobe infuscata*: Ehrmann and Borer 2015: 230–231, 249, ♂ (India, Nepal, Sri Lanka).

= *Deiphobe brunneri*: Ehrmann and Borer 2015: 230, 248, ♂.

= *Deiphobe incisa*: Werner, 1933: 900–901, ♂. Roonwal and Bhasin 1951: 313, 315 (♂) (type catalogue). Marshall 1975: 316 (♂) (type catalogue).

= *Deiphobe prope incisa*: Lombardo 1991: 379–380 (♀) (Myanmar-NE). Lombardo 1993: 197–198 (Nepal). Mukherjee et al. 1995: 200, 278, 279–280, 281 (India-NW). Ehrmann 2002: 118, ♂ (India, Nepal?). Mukherjee et al. 2014: 40–41 (India, Myanmar, Nepal). Ehrmann and Borer 2015: 230, partim (India, Nepal, Myanmar?). Patel and Singh 2016: 41 (India, Myanmar, Nepal).

= *Deiphobe yunnanensis* Tinkham, 1937: 561–562, ♀ (China: Yunnan). Wang 1993: 105–106. Hua 2000: 21. Ehrmann 2002: 118 (China). Otte and Spearman 2005: 229. Zhu et al. 2012: 184.

= *Sphendale infuscata*: Bolivar 1897: 312 (31), ♂, ♀ (India or.). Bolivar 1899: 809.

= *Sphendale robusta* Kirby, 1904: 86 (Nepal). Kirby 1904: 269. Marshall 1975: 323 (type catalogue).

Type material. Holotype ♀, India, depository unknown.

Type localities. India, India-NW, China.

Distribution. India, Nepal, Myanmar, SW China (Schwarz et al. 2018).

Faunal element. North Oriental.

Family Eremiaphilidae Saussure, 1869
Subfamily Iridinae Westwood, 1889
Tribe Schizocephalini Saussure, 1869
Genus *Schizocephala* Serville, 1831

15. *Schizocephala bicornis* (Linné, 1758)

Gryllus (*Mantis*) *bicornis* Linné, 1758: 426. Linné 1764: 116.

= *Mantis bicornis* Linné, 1758: Linné 1767: 691.

= *Mantis oculata* Fabricius, 1781: 348. Fabricius 1787: 228. Stoll 1787: 32–33, 43. Olivier 1792: 632. Fabricius 1793: 19. Lichtenstein 1802: 20.

= *Mantis stricta* Manuel, 1797: 641.

= *Schizocephala stricta* Olivier, 1792: Serville 1831: 56, attributio erroris

= *Schizocephala oculata* Fabricius, 1781: Burmeister 1838: 552.

= *Mantis* (*Schizocephala*) *oculata* Fabricius, 1781: Blanchard 1840: 13. Blanchard 1845: 226–227. Blanchard 1850: 13.

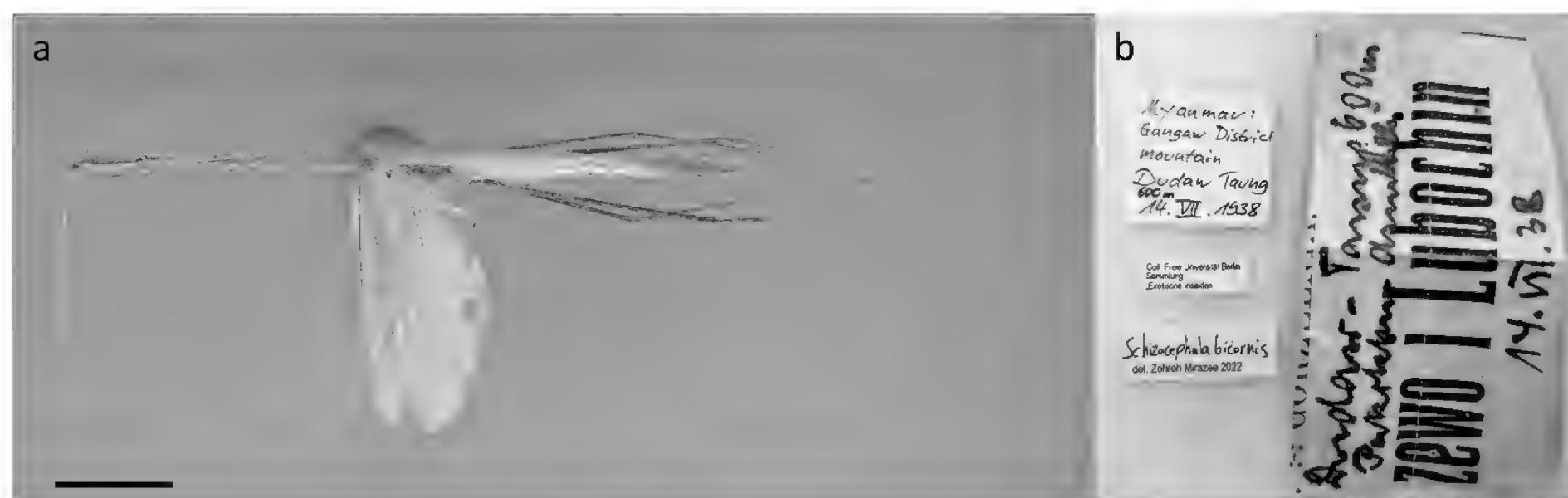


Figure 1. a *Schizocephala bicornis* male b labels. Scale bar: 30 mm (a).

Type material. Holotype ♀ UZIU.

Type locality. India.

Material examined. 1 ♂, Gangaw District Mountain, Dudaw Taung, Myanmar, 600 m. 4.07.1938), SDEI.

Distribution. India, Nepal, Sri Lanka, Myanmar (this work, new record deposited in SDEI: Gangaw District Mountain, Dudaw Taung, 600 m, 14 July 1938), Thailand, Vietnam.

Faunal element. North Oriental.

Remark. This study provides the first occurrence record of *S. bicornis* in Myanmar (Fig. 1). This mantid is characterized by its long and slender body, with coloration ranging from green to pale cream. It has antennae thickened near the base and anteriorly extended eyes that form a cone shape. The fore femur has four posteroventral spines and three discoidal spines, with the second being the longest. The fore tibia is shortened and equipped with six posteroventral spines. In females, the forewing is very small and opaque (Majumder et al. 2015).

Family Toxoderidae Saussure, 1869

Subfamily Toxoderinae Saussure, 1869

Tribe Toxoderini Saussure, 1869

Genus Metatoxodera Roy, 2009

16. Metatoxodera subparallela Roy, 2009

Metatoxodera subparallela Roy, 2009: 93–183.

Type material. Holotype MNHN, paratypes: MNHN (“allotype”), paratypes: NHML, SMNK.

Type localities. Myanmar S, Malaysia W.

Distribution. Myanmar, Malay Peninsula (Roy 2009).

Faunal element. Indochinese and Sundaian.

Genus Paratoxodera Wood-Mason, 1889

17. Paratoxodera meggitti Uvarov, 1927

Paratoxodera meggitti Uvarov, 1927: 658–659.

Type material. Holotype ♂ NHMUK.

Type localities. Burma (Myanmar).

Distribution. Myanmar, S China, Malay Peninsula, Borneo (Roy 2009).

Faunal element. Indochinese and Sundaian.

Genus *Toxodera* Serville, 1837

18. *Toxodera beieri* Roy, 2009

Toxodera beieri Roy, 2009: 111–117.

Type material. Holotype ♂ MHNG, paratypes: ♀ MHNG (“allotype”), ♂ MHNG, ♂ MNHN, ♂ SMNK, ♂ ZSM, ♀ NHML.

Type localities. West Malaysia.

Distribution. Myanmar, Laos, Malay Peninsula, NW Sumatra, Java, Bali (Roy 2009).

Faunal element. Indochinese and Sundaian.

Remark. Paratypes have no locality data.

19. *Toxodera denticulata* Serville, 1837

Toxodera denticulata Serville, 1837: 28–29.

= *Toxodera gigas* Ouwens, 1913: 123.

Type material. Holotype ♂ MNHN.

Type locality. Java.

Distribution. India, S China, Myanmar, Thailand, Laos, Malay Peninsula, Sumatra, Borneo, Java (Roy 2009).

Faunal element. Oriental.

20. *Toxodera fimbriata* Werner, 1930

Toxodera fimbriata Werner, 1930: 9.

= *Toxodera spinigera* Beier, 1931: 20–21.

Type material. Holotype ♂ NHRS.

Type locality. Sumatra.

Faunal element. Indochinese and Sundaian.

Distribution. Myanmar, Malay Peninsula, Sumatra, Borneo (Roy 2009).

21. *Toxodera integrifolia* Werner, 1925

Toxodera integrifolia Werner, 1925: 485–486.

Type material. Holotype ♀ NHRS.

Type locality. Java.

Distribution. Myanmar, Thailand, Malay Peninsula, Java (Roy 2009).

Faunal element. Indochinese and Sundaian.

Family Empusidae Burmeister, 1838
Subfamily Empusinae Burmeister, 1838
Tribe Empusini Burmeister, 1838
Subtribe Empusina Burmeister, 1838
Genus *Gongylus* Thunberg, 1815

22. *Gongylus gongylodes* (Linné, 1758)

Gryllus (*Mantis*) *gongylodes* Linné, 1758: 426. Linné 1764: 112.
= *Mantis gongylodes* Linné, 1758: Linné 1767: 690. Drury 1770: 129–130. Fabricius 1775: 275. Goeze 1778: 22. Fabricius 1781: 346. Fabricius 1787: 227. Gmelin-Linné 1790: 2049. Olivier 1792: 626–627. Fabricius 1793: 17. Lichtenstein 1802: 21–22. Brullé 1835: 78–79.
= *Mantis flabellicornis* Fabricius, 1793: 16–17. Lichtenstein 1802: 22. Latreille 1802: 90. Stoll 1813: 49–50.
= *Empusa* [*Gryllus* (*Mantis*)] *gongylodes* (Linné, 1758): Latreille 1807: 90. Stoll 1813: 46–48. Serville 1831: 48. Westwood 1837: 121–122. Serville 1839: 141–142. Charpentier 1841: 296–297.
= *Empusa flabellicornis* (Fabricius, 1793): Serville 1831: 48.
= *Empusa* (*Gongylodes*) [*Gryllus* (*Mantis*)] *gongylodes* (Linné, 1758): Burmeister 1838: 545.
= *Empusa* (*Empusa*) [*Gryllus* (*Mantis*)] *gongylodes* (Linné, 1758): Blanchard 1840: 10–11.
= *Gongylus* [*Gryllus* (*Mantis*)] *gongylodes* (Linné, 1758): Brunner Von Wattenwyl 1892: 76. Bolivar 1897: 316.

Type material. Holotype ♂ UZIU.

Type locality. India.

Distribution. India, Sri Lanka, Myanmar, Thailand, Java (Schwarz et al. 2018).

Faunal element. Oriental.

23. *Gongylus trachelophyllus* Burmeister, 1838

Empusa (*Gongylus*) *trachelophylla* Burmeister, 1838: 545.
= *Empusa* [*Gongylus*] *trachelophylla* Burmeister, 1838: Charpentier 1841: 297.

Type material. Type? 2♀♀ ZMB.

Type locality. India-E: Bengal, Lamar, Picot.

Distribution. India, Myanmar (Wood-Mason 1878).

Faunal element. Oriental.

Remark. In 1871, Wood-Mason received a specimen from Pegu (now Bago), Myanmar, collected by Mr. S. Kurz during a botanical expedition. He noted that the specimen has only slight differences from the typical form of the species, and its prothoracic shield displayed a striking bright blue-violet coloration. Further investigation is required to verify the presence of this species in Myanmar and determine whether it truly belongs to this species or represents a different one.

Family Hymenopodidae Giglio-Tos, 1915

Subfamily Hymenopodinae Giglio-Tos, 1915

Tribe Anaxarchini Giglio-Tos 1919

Genus *Odontomantis* Saussure, 1871

24. *Odontomantis planiceps* (De Haan, 1842)

Mantis (*Oxypilus*) *planiceps* De Haan, 1842: 88.

= *Mantis* (*Oxypilus*) *planiceps* De Haan, 1842: Giebel 1861: 112–113.

= *Acromantis javana* Giglio-Tos, 1915: Saussure 1870: 230.

= *Odontomantis javana* (Giglio-Tos, 1915): Saussure 1871: 33. Stål 1877: 87.

Type material. Holotype ♂ RMNH, paratypes: ♀ RMNH.

Type locality. Holotype: Java (♂), paratype: Borneo (♀).

Distribution. Myanmar (this work), Sumatra, Borneo, Java (Ehrmann 2002).

Faunal element. Indochinese and Sundaian.

Remark. This study documents the presence of this species in Myanmar, i.e., Yangon (16.842°N, 96.174°E), Pyin Oo Lwin (22.039°N, 96.472°E), Ye-U (22.763°N, 95.428°E), based on observations from iNaturalist (<https://www.inaturalist.org/observations/139537130>, <https://www.inaturalist.org/observations/132144778>, <https://www.inaturalist.org/observations/147323093>). However, additional research is required to confirm and validate these records. Additionally, two specimens housed at SMNK in Germany, identified as *Odontomantis* sp. from Myanmar, require further research to determine whether they belong to *Odontomantis planiceps*.

Tribe Hymenopodini Giglio-Tos, 1915

Subtribe Hymenopodina Giglio-Tos, 1915

Genus *Theopropus* Saussure, 1898

25. *Theopropus elegans* (Westwood, 1832)

Blepharis elegans Westwood, 1832: 190–191.

= *Creobotra* [*Blepharis*] *elegans* (Westwood, 1832): Saussure 1871: 145. Brunner Von Wattenwyl 1898: 215.

= *Theopropus praecontatrix* Saussure, 1898: 205 (♀).

= *Theopropus elegans* var. *flavicans* Giglio-Tos, 1927: 562.

= *Theopropus elegans* var. *rubrobrunneus* Beier, 1931: 153.

Type material. Holotype ♀ ZSIC.

Type locality. Tanasserim coast (Myanmar).

Distribution. Myanmar, Malay Peninsula, Sumatra, Borneo, Java (Ehrmann 2002).

Faunal element. Indochinese and Sundaian.

Genus *Hymenopus* Audinet-Serville, 1831

26. *Hymenopus coronatus* (Olivier, 1792)

Mantis coronata Olivier, 1792: 638.

- = *Mantis cornuta* Olivier, 1792: Lichtenstein 1802: 24–25.
- = *Empusa bicornis* Stoll, 1787: Latreille 1807: 90.
- = *Mantis bicornis* Stoll, 1787: Stoll 1813: 38.
- = *Hymenopa* [*Mantis*] *coronata* (Olivier, 1792): Serville 1839: 163.
- = *Hymenopus* [*Mantis*] *bicornis* (Stoll, 1787): Saussure 1871: 143. Wood-Mason 1878: 586. Saussure 1898: 209–210. Annandale 1901: 839–848. Shelford 1902: 232. Shelford 1903: 299–304. Pocock 1910: 839. Meade-Waldo 1910: 50–52.

Type material. Holotype ♀ ZMB.

Type locality. Ambon Island (Amboina), Java.

Distribution. NE India, Myanmar (this study), S China, Vietnam, Thailand, Sumatra, Nias, Borneo, Java, Ambon, Flores (Hebard 1920; Werner 1921, 1933; Beier 1942).

Faunal element. Indochinese and Sundaian.

Remark. This species is documented for the first time in Myanmar through observational records available on iNaturalist (<https://www.inaturalist.org/observations/165655863>, <https://www.inaturalist.org/observations/165655863>, <https://www.inaturalist.org/observations/143420594>) and ten specimens housed in SMNK, Germany.

Subtribe Pseudocreobotrina Brunner de Wattenwyl, 1893

Genus *Creobroter* Westwood, 1889

27. *Creobroter gemmatus* (Houttuyn in Stoll, 1813)

Mantis gemmata Houttuyn in Stoll, 1813: 71.

- = *Creobotra* [*Mantis*] *gemmata* (Stoll, 1813): Saussure 1869: 72–73, attributio erroris
- = *Creobotra* [*Mantis*] *urbana* (Fabricius, 1775): Saussure 1871: 144–145. Brunner Von Wattenwyl 1893: 73. Bolivar 1897: 315.
- = *Creoboter* [*Mantis*] *gemmata* (Stoll, 1813): Kirby 1904: 291, attributio erroris
- = *Creobroter gemmatus*: Beier 1929: 251–252. Ingrisch 1987: 136 (Nepal). Ehrmann 2002: 112. Otte and Spearman 2005: 89. Zhu et al. 2012: 47–49, ♂ and ♀. Ehrmann and Borer 2015: 230, 247, ♀. Patel et al. 2016c: 42051.

Type material. Holotype ♂ (lost).

Type locality. Unknown.

Distribution. India, Nepal, Myanmar (Ehrmann and Borer 2015; Kamila and Sureshan 2022), Thailand, S China, Vietnam, Sunda Islands (Ehrmann 2002).

Faunal element. Oriental.

Remark. Regarding the large disjunction and broad distribution of species within the *Creobroter* genus, it is probable that the extensive ranges reported for some species in the literature are artifacts of misidentification. We propose that this may have occurred due to the distributions of several closely related species being mistakenly combined into the range of a single species. The genus *Creobroter* includes 23 described species (Ehrmann 2002; Zhu et al. 2012), most of which exhibit considerable morphological similarity. Notably, *C. gemmatus* has often been used as a “standard identification” for any *Creobroter* specimen that could not be

classified into another species, which may have led to subsequent descriptions referencing material originally assigned to *C. gemmatus*. Moreover, the genus has never been comprehensively revised, and many type specimens of early-described species are either lost or irreparably damaged. As a result, the taxonomy of this genus remains problematic until these issues are thoroughly addressed.

Subfamily Phyllothelyinae

Tribe Parablepharini

Genus *Parablepharis* Saussure, 1870

28. *Parablepharis kuhlii* (De Haan, 1842)

Mantis (*Blepharis*) *kuhlii* De Haan, 1842: 93–94.

Type material. Holotype ♀ RMNH.

Type locality. Java.

Distribution. NE India, Myanmar, Vietnam, Borneo, Java (Ehrmann 2002; Mukherjee et al. 2014; Ehrmann and Borer 2015; Kamila and Sureshan 2022).

Faunal element. Indochinese and Sundaian.

Tribe Phyllothelyini Brunner de Wattenwyl 1893

Genus *Phyllothelys* Wood-Mason, 1877

29. *Phyllothelys breve* (Wang, 1993)

Kishinouyeum breve Wang, 1993: Ehrmann and Roy 2009: 74.

Type material. Holotype ♂ SEM.

Type locality. Yunnan, Damenglong.

Distribution. Myanmar, China, Laos (Shcherbakov and Anisyutkin 2018; Wu and Liu 2021).

Faunal element. Indochinese.

30. *Phyllothelys paradoxum* Wood-Mason, 1885

Phyllothelys paradoxum Wood-Mason, 1884: 209–210.

Type material. Holotype ZSIC.

Type locality. Burmah (Myanmar).

Distribution. Myanmar.

Faunal element. Endemic in Myanmar.

31. *Phyllothelys westwoodi* (Wood-Mason, 1876)

Phyllocrania westwoodi Wood-Mason, 1876: 176. Reprint: 1876: 506–507.
= *Phyllothelis* [*Phyllocrania*] *westwoodii* (Wood-Mason, 1876): Westwood 1889: 44.

Type material. Syntypes: ♂ ♀ ZSIC, ♂ NHMUK.

Type locality. India: (Assam, Bhutan), Myanmar: Tenasserim.

Distribution. NE India, SW Myanmar (Roy 2009).

Faunal element. Bengal.

Subfamily Oxypilinae Saussure, 1871

Tribe Oxypilini Saussure, 1871

Genus *Ceratomantis* Wood-Mason, 1876

32. *Ceratomantis saussurii* Wood-Mason, 1876

Ceratomantis saussurii Wood-Mason, 1876: 175. Reprint: 1876: 506–507.

= *Oxypilus* [*Ceratomantis*] *saussurii* (Wood-Mason, 1876): Wood-Mason 1879: 259.

Type material. Holotype ♂ ZSIC.

Type locality. Pegu (Myanmar).

Distribution. Myanmar, Thailand, S China, Laos, Malay Peninsula (Ehrmann 2002).

Faunal element. Indochinese and Sundaian.

Tribe Hestiasulini Giglio-Tos, 1915

Genus *Catestiasula* Giglio-Tos, 1915

33. *Catestiasula nitida* (Brunner, 1893)

Pachymantis nitida Brunner von Wattenwyl, 1892: 72–73.

= *Catestiasula nitidae* Brunner von Wattenwyl, 1892: Giglio-Tos 1915: 101. Giglio-Tos 1927: 547.

= *Catestiasula nitida* (Brunner von Wattenwyl, 1892): Beier 1958: 247.

Type material. Holotype ♂ NHMW.

Type localities. Myanmar-SW: Tenasserim near Mount Mooleyit, 1800–1900 m.

Distribution. S Myanmar, Malay Peninsula, Sumatra, Borneo, Java (Ehrmann 2002).

Faunal element. Indochinese and Sundaian.

Subfamily Acromantinae Brunner de Wattenwyl, 1893

Tribe Acromantini Brunner de Wattenwyl, 1893

Genus *Ambivia* Stål, 1877

34. *Ambivia popa* Stål, 1877

Ambivia popa Stål, 1877: 88. Westwood 1889: 22, 26.

= *Popa* [*Mantis*] *undata* (Fabricius, 1793): Rehn 1903: 718. Werner 1908: 123–124. Rehn 1911: 25–26.

= *Ambivia popa* Stål, 1877: Giglio-Tos 1914: 86. Giglio-Tos 1915: 8. Werner 1922: 125. Giglio-Tos 1927: 529–530. Uvarov 1927: 90. Rehn 1927: 51–52. Sjöstedt 1930: 13. Werner 1933: 901. Beier 1956: 40. Mukherjee and Hazra 1982: 464. Lombardo 1993: 204. Mukherjee and Hazra 1993: 497, 500, 506. Lombardo 1995: 258–260. Mukherjee et al. 1995: 212–213.

Type material. Holotype ♂ NHRS.

Type locality. India: Tranquebar (Kalkutta).

Distribution. India, Nepal, Sri Lanka, Myanmar, Thailand, Laos, Vietnam, Malay Peninsula, Sumatra, Borneo (Schwarz et al. 2018).

Faunal element. Oriental.

Genus *Acromantis* Saussure, 1870

35. *Acromantis indica* Giglio-Tos, 1915

Acromantis indica Giglio-Tos, 1915: 7.

Type material. Holotype ♀ ZSIC.

Type locality. Myanmar: Thngannyinaung, Myavadi.

Distribution. S Myanmar (Ehrmann 2002).

Faunal element. Endemic in Myanmar.

Family Deroplatyidae Westwood, 1889

Subfamily Deroplatyinae Westwood, 1889

Tribe Deroplatyini Westwood, 1889

Subtribe Pseudempusina Rehn, 1911

Genus *Pseudempusa* Brunner von Wattenwyl, 1893

36. *Pseudempusa pavonina* Giglio-Tos, 1916

Pseudempusa pavonina Giglio-Tos, 1916: 3.

Type material. Holotype ♀ MSNG?

Type locality. Myanmar-NE: Carin Chebà, 900–1100 m.

Distribution. N Myanmar, N Thailand (Ehrmann 2002).

Faunal element. Indochinese.

Remark. The holotype might be lost.

37. *Pseudempusa pinnapavonis* Brunner von Wattenwyl, 1892

Pseudempusa pinnapavonis Brunner von Wattenwyl, 1892: 75.

Type material. Holotype ♀ MSNG.

Type locality. Myanmar-NE: Mount Catcin: east of the city, Bhamo, Myanmar: Carin Chebà. 900–1100 m.

Distribution. India, Myanmar, Thailand (Ehrmann 2002).

Faunal element. North Oriental.

Subtribe Deroplatyina Westwood, 1889

Genus *Deroplatys* Westwood, 1839

38. *Deroplatys angustata* Westwood, 1841

Deroplatys angustata Westwood, 1841: 34.

= *Deroplatys horridica* Westwood, 1889: 40. Kirby 1904: 282.

Type material. Holotype ♂ OXUM.

Type locality. Java.

Distribution. Myanmar, Malay Peninsula, Sumatra, Borneo, Java (Ehrmann 2002).

Faunal element. Indochinese and Sundaian.

39. *Deroplatys trigonodera* Westwood, 1889

Deroplatys trigonodera Westwood, 1889: 40.

Type material. Holotype ♀ OXUM.

Type locality. Burmah (Myanmar).

Distribution. Myanmar, Sumatra, Borneo (Ehrmann 2002).

Faunal element. Indochinese and Sundaian.

Family Mantidae Latreille, 1802

Subfamily Choeradodinae Saussure, 1869

Genus *Asiadodis* Roy, 2004

40. *Asiadodis yunnanensis* (Wang & Liang, 1995)

Choeradodis yunnanensis Wang & Liang, 1995: 84.

Type material. Holotype ♂ IEAS.

Type locality. Yunnan.

Distribution. S China, Myanmar, N Thailand (Roy 2004).

Faunal element. Indochinese.

Remark. In Asia, *Asiadodis squilla* is broadly distributed across central and southern India as well as Sri Lanka, whereas *A. yunnanensis* is found in southern China, Myanmar, and northern Thailand. However, these areas have not been fully surveyed (Roy 2004).

Subfamily Mantinae Latreille, 1802

Genus *Mantis* Linné, 1758

41. *Mantis religiosa* Linné, 1758

Gryllus (*Mantis*) *religiosus* Linné, 1758: 426. Scopoli 1763: 105. Seba 1765, 4: 29, 75. Linné 1767: 690.

= *Mantis oratoria* Fabricius, 1775: 276–277. Lichtenstein 1802: 28–29.

= *Mantis sancta* Fabricius, 1787: 228. Olivier 1792: 628–629.

= *Mantis religiosa* var. *striata* Fabricius, 1793: 20.

= *Mantis maroccana* Thunberg, 1815: 287–299.

= *Mantis pia* Audinet-Serville, 1839: 193. Kirby 1899: 348.

= *Mantis prasina* Audinet-Serville, 1839: 195. Stål 1877: 61.

= *Mantis radiata* Motchoulsky: Fischer-Waldheim 1846: 101.

= *Mantis capensis* Saussure, 1872: 46–47. Stål 1877: 60–61.

- = *Mantis religiosa* var. *major* Gerstaecker, 1873: 12.
- = *Mantis macroura*: Brunner de Wattenwyl 1882: 60.
- = *Mantis carinata* Cosmovici, 1888: 172–173.
- = *Mantis religiosa* ab. *flava* Padewieth, 1900: 20.
- = *Mantis religiosa* ab. *brunnea* Padewieth, 1900: 20.

Type material. Holotype ♂, paratypes 3 ♀ LSUK.

Type locality. Africa.

Distribution. Africa, Asia, Europe, North America (introduced) (Ehrmann 2002).

Faunal element. Old world.

Remark. Originally found in Africa, Europe, and Asia, it has also been introduced to North America.

Genus *Statilia* Stål, 1877

42. *Statilia* sp.

Remark. In the present study, a specimen from Myanmar is documented as *Statilia* sp. (potentially *Statilia maculata*), based on an observation from iNaturalist (<https://www.inaturalist.org/observations/198274625>). Additionally, five specimens identified as *Statilia* and collected from Myanmar are housed at SMNK in Germany, requiring further research for species-level identification. The preliminary identification of *Statilia* sp. by the first author remains provisional, as accurate identification of this genus currently necessitates the examination of male genitalia.

43. *Statilia nobilis* (Brunner von Wattenwyl, 1893)

Mantis nobilis Brunner von Wattenwyl, 1893: 70. Beier 1935: 92. Beier 1942: 142. Mathur 1946: 101. Roonwal and Bhasin 1951: 317. Roy 1967: 127, 148. Roy 1968: 175 (syn. of *Statilia nemoralis*).

= *Statilia nemoralis*: Chatterjee and Mukherjee 2013: 4907–4909. Ehrmann and Borer 2015: 242, 268. Otte and Spearman 2005: 193. Patel and Singh 2016: 31. Ingrisch 1987: 114, 136, L3 = ♂ (Nepal). Chatterjee and Mukherjee 2013: 4907–4909.

= *Mantis indica* Mukherjee, 1995: 185, 201, 300–301, 357. Roy 2000: 163. Mukherjee and Shishodia 2000: 64, 65. Ehrmann 2002: 215. Mukherjee et al. 2005: 147, #35–36 (type catalog). Otte and Spearman 2005: 185. Vyjayandi 2007: 95. Berg et al. 2011: 44. Ghate et al. 2012: 22. Chatterjee and Mukherjee 2013: 4907–4909. Mukherjee et al. 2014: 3, 38–39. Ehrmann and Borer 2015: 242, 268. Schwarz et al. 2017: 7.

Type material. Holotype ♀ MSNG.

Type locality. Myanmar; Synonym: *S. indica*: holotype and paratype: India-NE.

Distribution. India, Nepal, Myanmar, Thailand (Ehrmann 2002; Kamila and Sureshan 2022).

Faunal element. North Oriental.

Subfamily Tenoderinae Brunner de Wattenwyl, 1893

Tribe Tenoderini Brunner de Wattenwyl, 1893

Subtribe Tenoderina Brunner de Wattenwyl, 1893

Genus *Tenodera* Burmeister, 1838

44. *Tenodera aridifolia* (Houttuyn in Stoll, 1813)

Mantis aridifolia Houttuyn in Stoll, 1813: 65–66. Audinet-Serville 1839: 178–179, ♂.
= *Paratenodera aridifolia*: Rehn 1903: 705. Rehn 1909: 180.
= *Tenodera aridifolia*: Giglio-Tos 1927: 414, ♂ and ♀ (Asia orientalis). Ehrmann 2002: 349. Ehrmann 2002: 349. Zhu et al. 2012: 221, ♂. Schwarz and Konopik 2014: 151. Ehrmann and Borer 2015: 242, 268, ♀. Patel and Singh 2016a: 37. Mukherjee et al. 2017: 9835–9836, ♂.
= *Tenodera aridifolia aridifolia*: Beier 1935: 93. Ingrisch 1987: 114, 136, ♂ and ♀ (Nepal). Otte and Spearman 2005: 200.
= *Mantis chloreudeta* Burmeister, 1838: 535 (Java, East India). Saussure 1869: 69. Giglio-Tos 1912: 37.

Type material. Holotype ♂ ZMUH.

Type locality. India-E.

Distribution. India, Nepal, S China, Taiwan, Japan, Myanmar, Thailand, Malay Peninsula (Penang, Perak), Philippines, Sumatra, Borneo, Sulawesi, Java, Lesser Sunda Islands (Lombok, Flores, Sumba); introduced: Florida (USA) (Ehrmann 2002; Mukherjee et al. 2014; Ehrmann and Borer 2015; Schwarz et al. 2018; Kamila and Sureshan 2022).

Faunal element. Oriental; Wallacean.

45. *Tenodera fasciata* (Manuel, 1787)

Mantis fasciata Manuel, 1787: 640 (Surinam) (err.).
= *Thespis fasciata*: Audinet-Serville 1831: 46, 55 (Surinam) (err.).
= *Mantis (Tenodera) fasciata*: Burmeister 1838: 534–535 (Amboina, Java, Tranquebar).
= *Tenodera fasciata*: Giglio-Tos 1912: 45–46. Giglio-Tos 1927: 416. Ingrisch 1987: 114, 136, ♂ (Nepal). Ehrmann 2002: 350. Schwarz and Konopik 2014: 151. Ehrmann and Borer 2015: 243, 269. Patel and Singh 2016a: 38.
= *Tenodera fasciata fasciata*: Otte and Spearman 2005: 202.
= *Mesopteryx fasciata*: Kirby 1904: 238.
= *Mantis leptelytra* Lichtenstein, 1802: 20 (Surinam) (err.). Balderson 1984: 11 (type catalog).
= *Mantis attenuata* Stoll, 1813: 13♂ (Surinam) (err.).
= *Tenodera attenuata*: Hebard 1920: 51, ♂ (Java). Werner 1922: 152. Balderson 1984: 11 (type catalog).
= *Mantis exsiccata* Audinet-Serville, 1839: 176 (Java). Balderson 1984: 11 (type catalog).
= *Tenodera intermedia* Saussure, 1870: 233. Balderson 1984: 11 (type catalog).
= *Tenodera superstitiosa*: Saussure 1871a: 99. Westwood 1889: 13. Rehn 1903: 705. Werner 1908: 118. Rehn 1909: 180.

Type material. See remark.

Type locality. Unknown.

Distribution. India, Sri Lanka, Nepal, S China, Myanmar, Thailand, Malay Peninsula, Borneo, Sulawesi, Java, Flores, Sumba, Moluccas (Ehrmann 2002; Mukherjee et al. 2014; Ehrmann and Borer 2015; Schwarz et al. 2018; Kamila and Sureshan 2022).

Faunal element. Oriental; Wallacean.

Remark. The holotype male of '*M. leptelytra*' (erroneously reported from Surinam) is housed in the MNHN, with the depository of the holotype male (*M. fasciata*) remaining unknown. '*Mantis attenuata*' is represented by a holotype male and paratype female from Indonesia (Maluku Islands), with their depository also unknown. Similarly, the holotype female of '*M. exsiccatal*' is from Java, possibly held at MIZT, while *T. intermedia*, based on a holotype female from New Zealand (erroneously reported), also lacks a known depository.

Genus *Mesopteryx* Saussure, 1870

46. *Mesopteryx platycephala* (Stål, 1877)

= *Tenodera platycephala* Stål, 1877: 56. Brunner de Wattenwyl 1893: 67, ♀ and ♂ (Myanmar). Sjöstedt 1930: 10, 42, ♀ (type catalog).

= *Mesopteryx platycephala*: Wood-Mason 1882: 34–35, ♂ and ♀. Westwood 1889: 14. Kirby 1904b: 237 (India-N, Myanmar). Giglio-Tos 1912: 55–56, ♂ and ♀ (Myanmar). Giglio-Tos 1927: 420 (India-E, Myanmar). Beier 1935: 94 (India, Myanmar). Ehrmann 2002: 220, ♀ (Cambodia, India, Myanmar). Ehrmann 2002: 220, ♀ (Cambodia, India, Myanmar). Otte and Spearman 2005: 188, ♀ (Indomalaya). Zhu et al. 2012: 214–215, 1–8, ♀. Mukherjee et al. 2014: 34, ♂ and ♀ (Cambodia, India, Myanmar, Nepal). Ehrmann and Borer 2015: 238, 265, ♂. Patel and Singh 2016: 30.

Type material. Holotype female, NHRS.

Type locality. Unknown.

Distribution. NE India, Nepal, Myanmar, Cambodia (Ehrmann 2002; Mukherjee et al. 2014; Ehrmann and Borer 2015; Schwarz et al. 2018; Kamila and Sureshan 2022).

Faunal element. Indochinese.

Subfamily Hierodulinae Brunner von Wattenwyl, 1893

Tribe Hierodulini Brunner de Wattenwyl, 1893

Genus *Rhombomantis* Ehrmann & Borer, 2015

47. *Rhombomantis tectiformis* (Saussure, 1870)

Rhombodera tectiformis Saussure, 1870: 232–233.

Type material. Holotype ♀ MHNG.

Type locality. India: Bombay.

Distribution. Pakistan, India, Nepal, Myanmar (Schwarz et al. 2018; Kamila and Sureshan 2022).

Faunal element. Indian.

48. *Rhombomantis fusca* (Lombardo, 1992)

Rhombodera fusca Lombardo, 1992: 97–100. Ehrmann 2002: 307. Otte and Spearman 2005: 268. Koçak and Kemal 2008: 46.
= *Hierodula brachynota* Wang and Dong 1993: 205, 207.
= *Rhombodera brachynota*: Ehrmann 2002: 306. Otte and Spearman 2005: 267.
= *Hierodula brachynota*: Koçak and Kemal 2008: 46. Zhu Xiao-Yu. et al. 2012: 246.

Type material. Holotype ♂, paratype ♀ Thailand-N: Prov. Chiang Mai-Samoeng, Maetaeng, DBUC.

Type locality. Thailand-N: Prov Chiang Mai: Samoeng, Maetaeng.

Distribution. China (Yunnan), Myanmar, Thailand, Laos, Malay Peninsula (Ehrmann and Borer 2015; Liu et al. 2021).

Faunal element. Indochinese.

Genus *Hierodula* Burmeister, 1838

49. *Hierodula bhamoana* Giglio-Tos, 1912

Hierodula bhamoana Giglio-Tos, 1912: 92–93.
= *Hierodula* [*Mantis*] *simulacrum* (Fabricius, 1793): Brunner von Wattenwyl 1893: 68.

Type material. Holotype ♀ MSNG.

Type locality. Myanmar-N: Bhamò.

Distribution. Myanmar (Ehrmann 2002).

Faunal element. Endemic in Myanmar.

50. *Hierodula grandis* Saussure, 1870

Hierodula grandis Saussure, 1870: 233.

Type material. Holotype ♂ MHNG, paratype ♀ MHNG.

Type locality. Bangladesh: Sylhit.

Distribution. NE India, Bangladesh, Myanmar, China (Ehrmann 2002; Mukherjee et al. 2014; Wang et al. 2020; Kamila and Sureshan 2022).

Faunal element. Bengal.

51. *Hierodula latipennis* Brunner von Wattenwyl, 1893

Hierodula latipennis Brunner von Wattenwyl, 1892: 69.
= *Hierodula unimaculata* nec Olivier, 1792: Zhu et al. 2012: 249–251.
= *Hierodula latipennis* Brunner von Wattenwyl, 1893: 69. Holotype (♀): Myanmar (Burma),
Carin Ghecù, MSNG.
= *Hierodula macrodentata* Wang, Zhou & Zhang, 2020: 6. Holotype (♂): China, Yunnan, SEM.

Type material. Holotype ♀ MSNG.

Type locality. Myanmar: Carin Ghecù, 1300–1400 m.

Distribution. China (Yunnan), Myanmar (Ehrmann 2002).

Faunal element. Indochinese.

52. *Hierodula multispinulosa* Brunner von Wattenwyl, 1893

Hierodula multispinulosa Brunner von Wattenwyl, 1893: 68–69.

Type material. Holotype ♀ NHMW?

Type locality. Myanmar-C: Mandalay.

Distribution. Myanmar (Ehrmann 2002).

Faunal element. Endemic in Myanmar.

Remark. The holotype might be lost.

53. *Hierodula patellifera* (Audinet-Serville, 1838)

Mantis patellifera Audinet-Serville, 1838: 185–186.

= *Mantis (Mantis) patellifera*: De Haan 1842: 70.

= *Hierodula patellifera*: Westwood 1889: 12, 27, 35.

= *Hierodula (Hierodula) patellifera*: Beier 1935: 203: 83.

= *Hierodula patellifera patellifera*: Ehrmann 2002: 180. Chatterjee and Srinivasan 2013: 131–135.

= *Mantis bipapilla* Audinet-Serville, 1839: 188–189 (synonymized by Hebard 1920: 58–59). Charpentier 1841: 291–292.

= *Mantis (Mantis) bipapilla*: De Haan 1842: 70.

= *Hierodula bipapilla*: Saussure 1871: 79–80. Borre 1883: 68. Westwood 1889: 12, 27, 34–35. Kirby 1904: 245. Shiraki 1911: 324–326. Giglio-Tos 1912: 96–98.

= *Hierodula (Hierodula) bipapilla*: Giglio-Tos 1927: 448. Vyjayandi and Narendran 2003: 315, 317.

= *Hierodula simulacrum*: Saussure 1869: 68. Saussure 1871: 77–78. Wood-Mason 1882: 30.

= *Hierodula simulacrum*: Borre 1883: 68.

= *Hierodula manillensis* Saussure, 1870: 233 (synonymized by Hebard 1920: 58–59). Ehrmann 2002: 180.

= *Hierodula (H.) manillensis*: Giglio-Tos 1912: 95–96. Giglio-Tos 1927: 447–448.

= *Hierodula raptoria* Stål, 1877: 38 (female) (synonymized by Giglio-Tos 1927: 447–448).

= *Hierodula dispar* Kirby, 1900: 146–147 (synonymized by Giglio-Tos 1927: 448).

= *Hierodula (H.) manillana* Giglio-Tos, 1912: 96 (synonymized by Hebard 1920: 58–49). Werner 1926: 228–229. Giglio-Tos 1927: 448. Ehrmann 2002: 180.

= *Hierodula (H.) patellifera manillana*: Beier 1935: 83.

= *Hierodula patellifera manillana*? Giglio-Tos, 1912: Ehrmann 2002: 180.

= *Hierodula saussurei* Kirby, 1904: 245 (synonymized by Hebard 1920). Werner 1926: 228–229.

= *Hierodula (H.) saussurei*: Giglio-Tos 1912: 94–95. Giglio-Tos 1927: 447.

= *Hierodula saussurei*: Werner 1930: 4. Ehrmann 2002: 180.

= *Hierodula (H.) assamensis* Mukherjee et al. 1995: 185, 201, 290–291.

Type material. Holotype ♂ MNHN, paratype ♀ MNHN.

Type locality. Java.

Distribution. India, China-S, Korea, Japan, Taiwan, Myanmar (this study), Philippines, Java, Sumba, New Guinea; introduced: Hawaii (Big Island; Ehrmann 2002).

Faunal element. Oriental; Wallacean; New Guinean; East Palearctic.

Remark. This species is documented for the first time in Myanmar through observational records available on iNaturalist (<https://www.inaturalist.org/observations/142558577>, <https://www.inaturalist.org/observations/250140183>) and two specimens collected from Myanmar housed in Natural History Museum (London).

54. *Hierodula venosa* Manuel, 1797

Mantis venosa Manuel, 1797: 639.

= *Mantis conspurcata* Lichtenstein, 1796: 79–80.

= *Mantis punctata* Stoll, 1813: 49.

= *Mantis vitrea* Stoll, 1813: 15.

= *Mantis (Hierodula) hybrida* Burmeister, 1838: 536.

= *Mantis bankae* Giebel, 1861: 111.

= *Mantis similis* Giebel, 1861: 112.

= *Hierodula novemdentata* Saussure, 1869: 68.

= *Hierodula daphne* Stål, 1877: 38.

= *Hierodula athene* Rehn, 1909: 180–182.

Type material. Type? ♀ ZMB.

Type locality. India-E: Tranquebar.

Distribution. India, Myanmar, Philippines, Sumatra, Borneo, Java.

Faunal element. Oriental.

Discussion

Of the 54 species assigned to a faunal element, only five were endemics of Myanmar and three had a typical Bengalese distribution, one of these also occurring in the East Palearctic. The most common pattern was the combination of an Indochinese and Sundaian distribution (15 species), while pure Indian and pure Indochinese distribution patterns with five and six species, respectively, were relatively rare. The same applies to six species for the combination of Indian and Indochinese distributions (i.e., North Oriental). While all these species had few cases of distributions beyond the Oriental realm, this was commonly observed for the 12 species widely distributed across the three major regions of the Oriental realm (Table 1).

The checklist provided here aims to build a foundation for future research, offering a comprehensive overview of currently known mantid species in Myanmar. It may facilitate comparative studies with neighboring regions, potentially revealing patterns of species distribution and endemism. It may also help to identify areas where further research is needed, guiding future survey efforts.

The data compiled here, for example, allow a biogeographic assessment of Myanmar and beyond. Thus, the entire mantid fauna of Myanmar clearly belongs to the Oriental realm sensu Wallace (1876). No Palearctic elements enter

the country and, considering mantids, also its northernmost parts are clearly Oriental with no Palearctic influences. Interestingly, in the majority of cases the species found in Myanmar are restricted to the Oriental realm. The species passing the Wallace line, hereby entering the transition zone of Wallacea, is limited to three, supporting the general relevance of this biogeographic border (Mayr 1944; Simpson 1977). Only one species advances to New Guinea and hence to Australis, supporting the eastern border of Wallacea (i.e., the Lydekker line) as another important biogeographical border. These findings offer more support to the “old” biogeographical classifications (Wallace 1876; Müller 1980) and align with the multi-taxa study by Holt et al. (2013) classifying southern China as part of the Oriental realm and not as transition zone; these authors did not verify the Wallace line but only the Lydekker line.

Looking at the biogeographic structuring of these mantids within the Oriental realm reveals a rate of close to 10% Myanmar endemics. This is relatively low compared with islands (Kier et al. 2009), but is noteworthy in a country not really geographically isolated from the adjoining areas. This finding also underlies the Myanmar faunal element erected on analyses of distribution data of odonates (Heiser and Schmitt 2013). The more widespread species clearly assigned Myanmar to the Indochinese and not to the Indian sub-region (20 vs 5 species). Interestingly, elements widespread in both these sub-regions (i.e., 6 species) are relatively few, underlining the assumed split between these two regions (Schmitt 2020), in the case of mantids maybe fostered by the Ganges delta. On the contrary, a common distribution in Indochina and Sundaland was observed for as many as 15 mantid species. Thus, the Isthmus of Kra, which has been demonstrated as an important biogeographic breaking-point in many species, including mammals, birds, and plants (Schmitt 2020), apparently is not of major importance for the distribution pattern of mantids. This might be explained by the drying of the sea during glacial periods and the complete exposure of the shelf area, which first was flooded only ca 500 ky ago (Salles et al. 2021). Apparently, mantids had good dispersal conditions via the dried Sunda shelf so that the recent geographic impediment via the Isthmus of Kra seems to be mostly irrelevant for their extant distributions. How this pattern might be reflected in the phylogeographic patterns within species is still awaiting resolution in future research. With a total of 12 species, taxa widely distributed all over the Oriental

Table 1. Numbers of mantid species endemic to Myanmar or present in four distinguished sub-regions of the Oriental realm and their combinations.

Faunal Element	Number of Species
Endemic in Myanmar	5
Bengal	3
Indian	5
Indochinese	6
Indochinese & Sundaian	15
North Oriental (Indian & Indochinese)	6
Oriental (Widespread in Oriental Realm)	12
Oriental & Wallacean	3
Oriental & East Palearctic	5
Old World	1

realm are only a small proportion of all species, thus again underlining the known strong sub-structuring within this realm (Heiser and Schmitt 2013; Schmitt 2020), which also holds true for mantids.

Based on known distributions and ecological factors, several mantid species are expected to occur in Myanmar, although their presence has yet to be confirmed. Species such as *Anaxarcha graminea*, *Hierodula tenuidentata*, *Tropidomantis gressitti*, and *Leptomantella tonkinae* are likely to inhabit the country's diverse ecosystems, given their presence in neighboring regions with similar environmental conditions. Recent discoveries like *Hierodula pistillinota* and *Hierodula confusa* further support the potential for new records with continued research, particularly in underexplored areas. However, some previously reported species, such as *Gonypeta brunneri*, *Theopompa servillei*, and *Rhombodera laticollis*, remain doubtful due to uncertainties in identification and the lack of confirmed specimens. Similarly, records of *Aethalochroa ashmoliana*, *Gonypeta punctata*, and *Toxoderopsis taurus* require further verification, as they may be the result of misidentifications or gaps in distribution data. The use of multiple data sources, including literature, museum collections, and online databases like GBIF and iNaturalist, provides a comprehensive approach to biodiversity documentation. This methodology enhances the reliability of findings and highlights the importance of integrating traditional taxonomic work (Marques et al. 2024). While online platforms offer valuable data, rigorous field studies and examination of museum specimens remain essential to confirm expected species and reassess doubtful records.

We recommend field studies to confirm the presence and evaluate the population status of the species listed in the checklist. Incorporating genetic studies might provide deeper insights into the biogeography of species, on the one hand maybe uncovering cryptic diversity and differentiation, or, on the other hand, potentially confirming population connectivity across entire ranges. Given the evolving nature of taxonomic research and the continuous emergence of new discoveries, regular updates to the checklist are crucial to maintain its relevance and accuracy (Marques et al. 2024).

One highlight of our checklist is the discovery of *Schizocephala bicornis* (Linné, 1758) in Myanmar expanding our understanding of the species' distribution in south-eastern Asia. This species is commonly known as the Indian grass mantid, as it is widespread particularly in southern India. It is a large species, with females up to 14.5 cm in length (Yadav and Painkra 2021) and belongs to the monotypic tribe Schizocephalini (Schwarz and Roy 2019). This mantis is a long, slender species that mimics grass, characterized by a narrow head with forward-protruding conical eyes, a triangular metazona, elongated slender legs, shortened fore coxae, and a long, triangular supra-anal plate (Fig. 1; Majumder et al. 2015). Its natural habitat consists of wet savannahs and high-growing grass layers, in which individuals can optimally camouflage themselves (Mukherjee et al. 1995). Although the presence of *S. bicornis* in Myanmar is not unexpected, given its known distribution in neighboring countries (Fig. 2; Mukherjee et al. 2017), this new record fills the hitherto assumed distribution gap, suggesting a more continuous distribution across the Indian subcontinent and south-eastern Asia. This discovery also underlines the need for more surveys and biodiversity assessments in this region to better understand the extant distributions of Mantodea species.

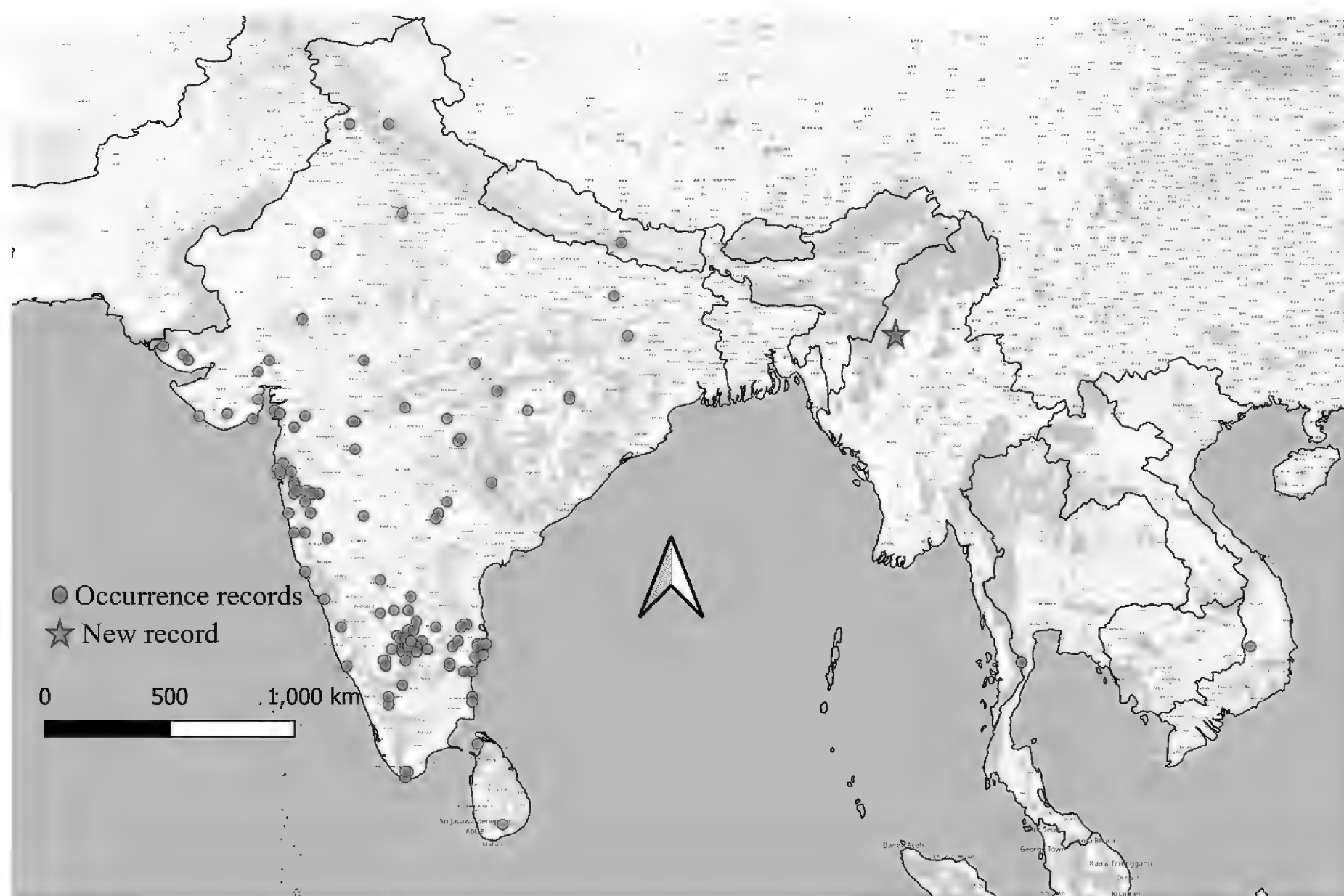


Figure 2. Distribution records of *Schizocephala bicornis*. Red circles representing previously documented locations, while the blue star highlights the newly identified record from Myanmar reported in this study and partly closing the formerly existing gap in the distribution.

In summary, this study not only broadens our understanding of Mantodea distribution in south-eastern Asia but also serves as a valuable resource for future entomological research in Myanmar. The combination of new distribution records and a comprehensive species checklist lays the basis for more detailed studies of Myanmar's rich insect fauna, thereby contributing to broader efforts in biodiversity conservation and taxonomic research in this region.

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Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

No ethical statement was reported.

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Author contributions

Study conception and design: Z. Mirzaee; data collection: Z. Mirzaee; data analysis: Z. Mirzaee; interpretation of results: Z. Mirzaee; draft manuscript preparation: Z. Mirzaee; visualization: Z. Mirzaee; critical feedback on the manuscript: T. Schmitt, M. Wiemers.

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Data availability

All of the data that support the findings of this study are available in the main text.

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